Trend Study 19B-13-02

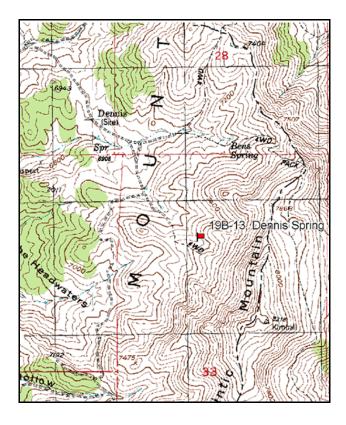
Study site name: <u>Dennis Spring</u>. Vegetation type: <u>Big Sagebrush-Grass</u>.

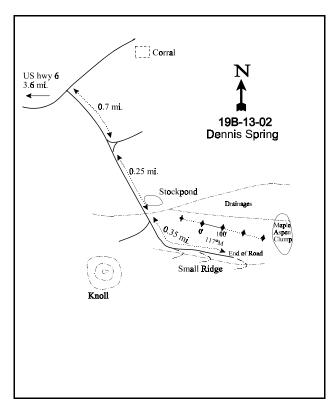
Compass bearing: frequency baseline <u>117</u> degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). Rebar: belt 2 on 1ft and belt 5 on 1ft.

LOCATION DESCRIPTION

From mile marker 130 on Highway U.S. 6, proceed east for 1.6 miles to a fork and go left. Proceed 2.0 miles on the "Dennis Road" up Copperpolis Creek to a fork. Turn right (to the southeast) and travel uphill for 0.70 miles to another fork. Turn right again for 0.25 miles to where there is a fork turning off sharply to the right and a stockpond on the left. Continue straight ahead (on the left fork) for an additional 0.35 miles to where the road ends on top of a small ridge. At this point, there will be an aspen-maple stand to your immediate left-front at the head of a small drainage. Just behind you, there should be a knoll. From the front-rightmost maple tree of the clump to your front, walk 13 paces on an azimuth of 8 degrees to the number 300-foot stake. The 0-foot marker of the baseline is marked by a red browse tag, number 3945, is located in the approximate middle of a triangle formed by three boulders. All plot markers consists of steel fenceposts 15" to 20" in height.





Map Name: <u>Tintic Mountain</u>

Township 11S, Range 2W, Section 33

Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4408688 N 408082 E

DISCUSSION

Dennis Spring - Trend Study No. 19B-13

The Dennis Spring trend study samples a summer range site near the bottom of a moderate sloping (20%), north facing swale. Elevation is approximately 7,200 feet. Dennis Spring is located one-quarter mile further up the swale from the study site. Prior to 2001, the plant community was dominated by a moderately tall mountain big sagebrush population with an understory of lower growing shrubs, forbs, and grasses. Estimated mountain big sagebrush cover was high in 1997 at 32%. A wildfire burned through the site in 2001, greatly reducing the browse component. Prior to the burn, the area received moderate use by deer and sheep, and light use by cattle and elk. A pellet group transect read on site in 2002 estimated 7 deer days use/acre (18 ddu/ha) and 13 sheep days use/acre (33 sdu/ha). Mormon crickets were abundant on the site in 2002 and appeared to have utilized many of the herbaceous plants. Except for a few isolated aspen clones and patches of bigtooth maple, the area is devoid of tree cover.

The effective rooting depth of the soil was almost 12 inches, with an average soil temperature of 52°F measured almost 14 inches in depth in 1997. Soil textural and chemical analysis indicates a sandy clay loam with a moderately acidic pH (5.9). Soil erosion was minimal both before and after the burn. The rate of sedimentation from the upper slope likely exceeds the rate of erosion. Bare ground was moderate before the burn at 17% in 1997, increasing significantly in 2002 to 50%. Although bare soil is high, herbaceous vegetative cover increased following the burn. The erosion condition class was determined as stable in 2002.

Mountain big sagebrush provided nearly 80% of the browse cover in 1997, while the density was estimated at just under 5,000 plants/acre. Use was light, decadence low, and vigor generally good. Following the burn, mountain big sagebrush density was estimated at 7,120 plants/acre in 2002, all of which were young plants. In 2002, vigor was normal throughout the entire population and the plants displayed light use. With the abundance of young, especially during drought, the sagebrush population should rebound quickly. Snowberry, Oregon grape, and low rabbitbrush were also abundant in 2002 following the burn. These species have nearly the same densities after the fire compared to the pre-burn community. With an abundance of open spaces on this site due to the burn, all of these species will likely increase dramatically. Total browse cover was estimated at 41% in 1997, decreasing to 6% in 2002.

The herbaceous understory will benefit the most from the burn. Perennial grasses declined by nearly half in sum of nested frequency in 2002, but with drought conditions following a wildfire, the decline could have been worse. The grass component is diverse. The perennial species will do well with normal precipitation patterns in the future. The most abundant grasses before and after the burn are bluebunch wheatgrass and subalpine needlegrass. Other less abundant perennials include slender wheatgrass, smooth brome, mutton bluegrass, Sandberg bluegrass, bottlebrush squirreltail, and Letterman needlegrass. Cheatgrass brome significantly increased in nested frequency in 2002, but this species does not yet dominate the site. Perennial forbs increased in average cover and sum of nested frequency following the burn. This is a very positive change, especially in light of harsh drought conditions in 2002. Mormon crickets were abundant in 2002 and had utilized many of the forbs on the site. It would be interesting to see what the site would have looked like without heavy cricket use. Most of the other sites in this unit showed a decline in sum of nested frequency values for perennial forbs in 2002 due in part to drought but more likely due to cricket use. The most abundant perennial forbs on the site include longleaf phlox, prickly lettuce, ballhead waterleaf, and silvery lupine. Annual forbs were also moderately abundant in 2002, primarily lambsquarters goosefoot and Douglas knotweed. It will be critical for the desirable native perennials, both grasses and forbs, to get well established on this site in the next few years so cheatgrass does not become dominate. The health of the understory, and ultimately the site as a whole, will depend upon how well perennial grasses and forbs become established and persist. Management of this site, primarily the grazing regime, will play an important role in the recovery of the vegetation community in the future.

1983 APPARENT TREND ASSESSMENT

Soil trend appears stable. There is some erosion apparent, but it is not excessive at this time. The area has a demonstrated potential to produce abundant forage. The browse composition is becoming progressively less favorable with the most obvious indicator being a rapidly increasing population of stickyleaf low rabbitbrush. Grass production is depressed and undesirable forbs, or those of only moderate value, far outnumber desirable species. The herbaceous understory trend appears stable but in poor condition.

1989 TREND ASSESSMENT

The heavily disturbed soil lacks stable cover and has high erosion potential. Percent bare ground has changed little since 1983 and erosion appears to be occurring at the same rate as before. The soil trend is stable. The density of mountain big sagebrush has increased from 1,199 plants/acre to 8,532 plants/acre. The increase is due to a highly abundant young age class in 1989. This population shows good vigor and light utilization. The browse trend is up. A negative aspect to the increase in sagebrush is it may have a detrimental effect on the production and diversity of the understory. This will need to watched closely in future readings. For now, the herbaceous understory trend is stable. Sum of nested frequency for perennial grasses and forbs slightly increased since 1983.

TREND ASSESSMENT

soil - stable (3)

browse - up (5)

herbaceous understory - stable (3)

1997 TREND ASSESSMENT

The soil trend continues to be stable. Percent bare ground cover has declined, but there is still high potential for erosion in the shrub interspaces. The browse condition is stable, but this is a summer range not a winter range, and as long as sagebrush cover continues to be this high, a productive herbaceous understory will never develop. A decrease in canopy cover is needed for a healthier herbaceous understory. The herbaceous understory trend is stable but depleted. Production is below potential and there are many undesirable forbs present.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

<u>herbaceous understory</u> - stable, but poorly developed and depleted (3)

2002 TREND ASSESSMENT

Trend for soil is down due to fire and drought. Bare soil increased to 50%, and the site has a very high erosion potential at the present time. It will take the vegetative community several years to develop, and until it does, soils are susceptible to erosion. The erosion condition class was rated as stable in 2002, but only because of very low precipitation. Trend for browse is slightly up. The mountain big sagebrush population has been converted from an overly mature, dense canopied community to one with an open canopy composed totally of young, vigorous plants. Density of young sagebrush plants is high at over 7,000 plants/acre, so the sagebrush component should develop rather quickly. Because this site lies above 7,000 feet in elevation, the most important vegetation component on this site is the understory, and this decrease in sagebrush canopy should greatly benefit grasses and forbs in the future if livestock use is minimal. Trend for the herbaceous understory is slightly down due a decline in sum of nested frequency for perennial grasses. However, as was stated before, the decline in sagebrush canopy should be a positive change for the understory. The increase in frequency of perennial forbs in 2002, with drought is very positive and would undoubtedly have been greater without the heavy use by Mormon crickets.

TREND ASSESSMENT

soil - down (1)

browse - slightly up (4)

<u>herbaceous understory</u> - slightly down (2)

HERBACEOUS TRENDS --

Herd unit 19B, Study no: 13

T y p	Species	Nested	Freque	ncy		Quadra	nt Frequ	ency		Average Cover %	
e		'83	'89	'97	'02	'83	'89	'97	'02	'97	'02
G	Agropyron cristatum	-	-	4	1	-	-	1	1	.00	.15
G	Agropyron spicatum	_b 72	_b 80	_a 47	_a 31	33	35	16	15	.32	.54
G	Agropyron trachycaulum	-	-	-	8	-	-	-	3	-	.21
G	Bromus inermis	-	-	3	2	-	-	1	1	.00	.15
G	Bromus japonicus (a)	-	-	-	-	-	-	-	-	.00	-
G	Bromus tectorum (a)	-	-	_a 26	_b 129	-	-	10	48	.41	.71
G	Poa fendleriana	-	3	9	8	-	1	3	6	.21	.27
G	Poa secunda	_b 45	_b 32	_a 6	_a 1	19	13	3	1	.04	.00
G	Sitanion hystrix	_a 12	_a 23	_b 43	_a 3	7	10	19	2	.59	.20
G	Stipa columbiana	a_	_b 19	_c 105	_b 64	-	7	41	27	1.50	2.38
G	Stipa lettermani	-	-	-	2	-	-	-	1	-	.01
Т	otal for Annual Grasses	0	0	26	129	0	0	10	48	0.42	0.70
Т	otal for Perennial Grasses	129	157	217	120	59	66	84	57	2.69	3.94
Т	otal for Grasses	129	157	243	249	59	66	94	105	3.11	4.65
F	Agoseris glauca	5	-	2	3	2	-	1	3	.00	.04
F	Arabis spp.	_{ab} 7	e_{d}	a-	a ⁻	4	6	-	-	-	-
F	Arenaria fendleri	2	1	-	-	1	1	-	-	-	-
F	Astragalus convallarius	_b 18	_{ab} 7	_a 3	_{ab} 12	10	6	2	8	.01	.31
F	Aster spp.	_a 2	_b 33	a ⁻	_a 1	2	13	-	1	-	.00
F	Astragalus spp.	_	-	3	-	-	_	1	-	.00	-

T y p	Species	Nested	Freque	ncy		Quadra	nt Freque	ency		Average Cover %	
e		'83	'89	'97	'02	'83	'89	'97	'02	'97	'02
F	Calochortus nuttallii	1	-	1	1	1	-	1	1	.00	.00
F	Chenopodium album (a)	-	-	_a 83	_b 142	-	-	31	53	.40	1.41
F	Cirsium spp.	3	3	2	2	3	2	1	1	.00	.03
F	Collomia linearis (a)	-	-	5	-	-	-	2	-	.01	-
F	Comandra pallida	-	2	2	-	-	1	1	-	.00	-
F	Collinsia parviflora (a)	-	-	_b 190	_a 19	-	-	67	7	1.08	.06
F	Crepis acuminata	_b 23	_c 142	_b 33	a-	13	64	21	-	.25	.00
F	Cymopterus spp.	-	-	2	-	-	-	1	-	.00	-
F	Cynoglossum officinale	_b 34	_b 32	_b 39	_a 10	20	16	23	5	.76	.19
F	Epilobium brachycarpum (a)	-	-	-	3	-	-	-	1	-	.00
F	Erigeron spp.	-	-	3	3	-	-	1	1	.03	.00
F	Eriogonum racemosum	_b 14	_{ab} 10	a-	_a 2	8	4	-	1	-	.00
F	Gayophytum ramosissimum (a)	-	-	a-	_b 28	-	-	-	10	-	.25
F	Geranium spp.	3	3	-	-	2	1	-	-	-	-
F	Hackelia patens	7	-	-	-	4	-	-	-	-	-
F	Hydrophyllum capitatum	a-	a-	a-	_b 62	-	-	-	30	-	3.67
F	Lathyrus brachycalyx	18	15	18	17	9	5	10	7	.25	.46
F	Lactuca serriola	a-	a-	_a 4	_b 122	-	-	2	49	.01	1.11
F	Lupinus argenteus	_c 208	_b 147	_b 140	_a 47	84	71	63	21	7.32	1.29
F	Machaeranthera canescens	-	2	2	-	-	1	1	-	.00	-
F	Microsteris gracilis (a)	-	-	32	14	-	-	13	5	.09	.22
F	Penstemon spp.	-	-	-	3	-	-	-	2	-	.01
F	Phlox longifolia	_a 79	_{ab} 96	_a 76	_c 133	40	46	31	53	.22	2.54
F	Polygonum douglasii (a)	-	-	_a 20	_b 83	-	-	12	29	.06	.81
F	Senecio integerrimus	a-	a-	a-	_b 29	-	-	-	16	-	.32
F	Senecio multilobatus	a-	a-	_b 44	a-	-	-	26	-	.45	-
F	Solidago spp.	_b 56	a-	a-	a-	26	-	-	-	-	-
F	Streptanthus cordatus	-	-	5	-	-	-	2	-	.03	-
F	Taraxacum officinale	3	6	15	2	1	3	6	1	.05	.03
F	Trifolium spp.	_a 14	_{ab} 23	_b 37	_{ab} 22	6	11	16	11	.10	.22
F	Viguiera multiflora	-	-	1	-	-	-	1	-	.00	-
F	Viola spp.	-	1	-	-	-	1	-	-	-	-
Т	otal for Annual Forbs	0	0	330	289	0	0	125	105	1.65	2.76
Т	otal for Perennial Forbs	497	532	432	471	236	252	211	211	9.56	10.28
T	otal for Forbs	497	532	762	760	236	252	336	316	11.21	13.05

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Herd unit 19B, Study no: 13

T y p	Species	Strip Freque	ncy	Average Cover %	
e		'97	'02	'97	'02
В	Acer grandidentatum	1	0	-	-
В	Amelanchier alnifolia	2	0	-	-
В	Artemisia tridentata vaseyana	91	70	32.23	1.43
В	Chrysothamnus nauseosus albicaulis	7	1	.69	1
В	Chrysothamnus viscidiflorus viscidiflorus	80	83	2.67	2.71
В	Juniperus osteosperma	2	0	1.12	-
В	Mahonia repens	29	28	1.33	.86
В	Pachistima myrsinites	0	0	-	.03
В	Purshia tridentata	0	0	.03	-
В	Rosa woodsii	5	8	.06	.09
В	Symphoricarpos oreophilus	55	29	2.23	.43
В	Tetradymia canescens	6	11	.21	.53
В	Unknown browse	1	0	-	_
To	otal for Browse	279	230	40.60	6.10

CANOPY COVER -- LINE INTERCEPT

Herd unit 19B, Study no: 13

Species	Percen Cover	t
	'97	'02
Artemisia tridentata vaseyana	-	1.42
Chrysothamnus viscidiflorus viscidiflorus	-	2.50
Mahonia repens	-	.50
Rosa woodsii	-	.03
Symphoricarpos oreophilus	-	1.17
Tetradymia canescens	-	.17

BASIC COVER --

Herd unit 19B, Study no: 13

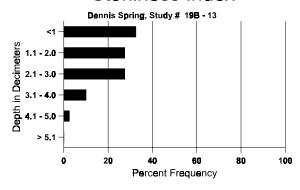
Cover Type	Nested Frequen	cy	Average Cover %						
	'97	'02	'83	'89	'97	'02			
Vegetation	327	337	1.00	10.75	47.86	28.06			
Rock	114	188	6.00	7.25	3.45	6.38			
Pavement	104	274	.50	0	1.26	3.86			
Litter	386	348	68.50	57.50	54.12	22.89			
Cryptogams	9	3	0	0	.04	.85			
Bare Ground	204	352	24.00	24.50	17.09	50.06			

SOIL ANALYSIS DATA --

Herd Unit 19B, Study no: 13, Dennis Spring

Effective rooting depth (in)	Temp °F (depth)	рН	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
11.5	52.3 (13.7)	5.9	48.4	27.1	24.6	5.2	52.0	553.6	0.5

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 19B, Study no: 13

Туре	Quadra Freque	
	'97	'02
Sheep	8	6
Rabbit	3	1
Elk	4	-
Deer	14	4
Cattle	1	-

Pellet T	ransect
Pellet Groups per Acre	Days Use per Acre (ha)
© 2	0 2
174	13 (33)
-	1
-	1
96	7 (18)
-	-

BROWSE CHARACTERISTICS --

Herd unit 19B, Study no: 13

Y	Forn	n Cla	ass (N	o. of I	Plants))					Vigor Cl	ass			Plants	Average	Total
R		1	2	3	4	5	6	7	8	9	1	2	3	4	Per Acre	(inches) Ht. Cr.	
er g	randi	ident	atum												_	_	_
83		_	-	-	-	-	-	-	-	-	-	-	-	-	0		0
89		3	-	-	-	-	-	-	-	-	3	-	-	-	200		3
97		1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
02		-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Plar	nts Sl	nowi	ng	Mo	derate	Use	Hea	avy Us	se	Po	oor Vigor				(%Change	
		'83		00%	o		00%	6		00)%						
		'89		00%	o		00%	6		00)%				-	-90%	
		'97		00%	o		00%	6		00)%						
		'02		00%	o		00%	o		00)%						
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A G	Y R	Form Cla	ass (N	o. of I	Plants))					Vigor Cl	ass			Plants Per Acre	Average (inches)		Total
E		1	2	3	4	5	6	7	8	9	1	2	3	4	1 01 7 1010	Ht. Cr.		
Α	mela	nchier alı	nifolia															
-	83														0			0
1	89	_	-	_	-	-	_	-	_	-	_	-	-	-	0			0
	97	1	_	_	1	_	_	_	_	_	2	_	_	_	40			2
	02	-	_	_	-	_	-	-	_	_	-	_	_	_	0			0
D	83		_							_	_	_	_		0			0
	89	_	_	1	_	_	_	_	_	_	1	_	_	_	66			1
	97	_	_	_	_	_	_	_	_	_	_	_	_	_	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
%	Plar	nts Showi	nø	Mod	derate	Use	Hea	vy Us	se	Po	oor Vigor				(%Change		
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		'97		00%	o o		00%	6		00)%							
		'02		00%	ó		00%	o		00)%							
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													'89 '97		40			100%
													'02		0			0%
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	02	1 51	-	-	1	-	-	-	-	-	2 51	-	-	-	40 1020			2 51
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	02	356	-	-	-	-	_	_	-	-	356	-	-	-	7120			356
																	20	
IVI	83 89	11 49	3	-	-	-	-	-	-	-	14 41	- 0	-	-	933 3266		29 20	14 49
	89 97	210	1	-	5	-	-	-	-	-	207	8	9	-	4320		36	216
	02	210	-	_	<i>-</i>	_	_	_	_	_	207	_	<i>-</i>	_	0		11	0
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	02	<i>21</i>	_	_	_	_	_	_	_	-	-	_	_	-	0			0
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$ ^{\Lambda}$	89	_	_	-	-	-	-	_	-	-	_	-	-	_	0			0
	97	_	_	_	_	_	_	_	_	_	-	_	_	_	380			19
	02	_	-	-	-	-	-	-	-	-	-	-	-	_	100			5
0/0		nts Showi	ng	Mo	derate	Use	Hea	ıvy Us	se	Po	oor Vigor					%Change		
′ °	1 141	'83	- 5	28%		<u> </u>	00%		<u></u>)%					+86%		
		'89		00%			00%)%					-42%		
		'97		.819	%		00%	6		08	3%				-	+31%		
		'02		00%	ó		00%	6		00)%							
	,	N1 / / /	,	1 1.	Б	100	11.	,					100		1100	ъ		1.50
Γ	otal I	Plants/Ac	re (exc	cludin	g Dea	a & Se	edling	gs)					'83 '89		1199 8532	Dec:		17%
													'89 '97		4920			1% 11%
													'02		7120			0%
													02	•	/120			U / 0

A	Y R	Form Cla	ass (N	lo. of l	Plants)					Vigor	Class			Plants Per Acre	Average (inches)	Total
E	K	1	2	3	4	5	6	7	8	9	1	2	. 3	3 4		Ht. Cr.	
Cl	nrysc	othamnus	nause	eosus a	albica	ulis											
Y	83	-	-	-	-	=	-	-	-	-	-	-			0		0
	89	-	-	-	-	-	-	-	-	-	-	-			0		0
	97	1	-	-	-	-	-	-	-	-	1	-			20		1
	02	-	-	1	-	-	-	-	-	-	-	1			20		1
M	83	-	-	-	-	-	-	-	-	-	_	-			0	-	- 0
	89	-	-	-	-	-	-	-	-	-	-	-			0	-	- 0
	97	2	2	-	-	1	-	-	-	-	5	-			100	44 3	
	02	ı	-	-	-	-	-	-	-	-	-	-			0	-	- 0
D	83	1	-	-	-	-	-	-	-	-	-	-			0		0
	89	-	-	-	-	-	-	-	-	-	-	-			0		0
	97	-	4	-	-	-	-	-	-	-	1	-		- 3			4
	02	ı	-	-	-	-	-	-	-	-	-	-			0		0
%	Plan	nts Showi	ing	Mo	derate	Use	Неа	avy U	<u>se</u>	Po	or Vig	<u>or</u>				%Change	
		'83		00%	o		00%	o)%						
		'89		00%			00%)%						
		'97		70%			00%)%				•	-90%	
		'02		00%	6		100)%		00)%						
$ _{\mathrm{T}_{\ell}}$	otal F	Plants/Ac	re (ex	cludin	g Dea	d & S	eedlin	95)						'83	0	Dec:	0%
``	1	101110/110	-5 (OA		5 D 00			5°)						'89	0	D • • • • • • • • • • • • • • • • • • •	0%
														'97	200		40%
														'02	20		0%

A Y G R		Form C	lass (1	No. of	Plants)					Vigor C	lass			Plants Per Acre	Average (inches)	Total
E		1	2	3	4	5	6	7	8	9	1	2	3	4	I CI ACIC	Ht. Cr.	
Chr	VSC	othamnus	s visci	difloru	us visc	idiflor	us								l		1
S 8	_	_					_			_	_		_	_	0		0
	9	2	_	_	_	_	_	_	_	_	2	_	_	_	133		2
	7	4	-	-	1	-	-	-	-	-	5	-	-	-	100		5
0	2	ı	-	-	-	-	-	-	-	-	1	-	-	-	0		0
Y 8	3	27	-	-	-	-	-	-	-	-	27	-	-	-	1800		27
	9	16	2	-	6	-	-	-	-	-	24	-	-	-	1600		24
	7	39	-	-	2	-	-	-	-	-	41	-	-	-	820		41
\vdash	2	48	-	-	-	-	-	-	-	-	48	-	-	-	960		48
	3	202	-	-	-	-	-	-	-	-	202	-	-	-	13466		
	9	1	15	10	9	3	-	-	-	-	34	4	-	-	2533	12 8	
	7	142 171	32 13	2 2	51	-	2	6	-	-	231 184	4 2	-	-	4700 3720	10 10 8 10	
┝					-		-	-	-							8 10	
D 8	9	2	- 15	- 55	-	- 9	-	-	-	-	73	- 7	-	- 1	0 5400		0 81
	7	1	13	33	-	9	-	-	-	-	/3	_	-	1 2	3400		2
	2	1	-	_	_	_	_	_	_	_	-	_	_	1	20		1
X 8		_								_				_	0		0
	9	-	_	_	_	_	_	_	_	_	-	_	_	_	0		0
	7	-	-	-	-	-	-	-	-	-	-	_	-	-	20		1
0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% P	lan	nts Show	ing	Mo	derate	Use	Неа	avy Us	<u>se</u>	Po	or Vigor	<u>.</u>				%Change	
		'83		009			00%			00						-38%	
		'89		319			45%				9%					-42%	
		'97 '02		129 069			01% .85				1% 2%				•	-15%	
		02		007	70		.83	70		.42	270						
Tota	al F	Plants/Ac	ere (ex	cludir	ıg Dea	d & S	eedlin	gs)					'83		15266	Dec:	0%
					Ü			O ,					'89		9533		57%
													'97		5560		1%
													'02		4700		0%
Juni	ipe	rus ostec	spern	na													
Y 8	3	-	-	_	-	-	-	-	_	-	-	_	-	-	0		0
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	7	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% P	lan	nts Show			derate	Use		avy Us	<u>se</u>		or Vigor	<u>.</u>			-	%Change	
		'83		009			00%				0%						
		'89		009			00%)% .o./						
		'97 '02		009			00% 00%)%)%						
		02		00,	/ U		00/	J		00	. , 0						
I																	
Tota	al F	Plants/Ac	cre (ex	cludir	ng Dea	d & S	eedlin	gs)					'83		0	Dec:	-
Tota	al F	Plants/Ac	ere (ex	cludir	ng Dea	d & S	eedlin	igs)					'89		0		- -
Tota	al F	Plants/Ac	ere (ex	cludir	ng Dea	d & S	eedlin	igs)									- - -

A G	Y	Form Cla	ass (N	o. of	Plants)					Vigor C	lass			Plants Per Acre	Average (inches)		Total
E	K	1	2	3	4	5	6	7	8	9	1	2	3	4	rei Acie	Ht. Cr.		
M	ahor	nia repens	5													•		
	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97 02	1	-	-	-	-	-	-	-	-	1	-	-	-	20 0			0
Н	83								_	_	_	_			0			0
	89	6	-	_	_	_	_	_	_	-	6	_	-	-	400			6
	97	17	-	-	-	-	-	-	-	-	17	-	-	-	340			17
Н	02	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	83	5	-	-	-	-	-	-	-	-	5	-	-	-	333	4	6	5
	89 97	188	2	-	13	-	-	9	-	-	2 210	-	-	-	133 4200	5 4	3 5	2 210
	02	312	-	-	-	-	-	-	-	-	298	-	14	-	6240	3	5	312
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97 02	- 4	-	-	-	-	-	-	-	-	- 1	-	-	3	0 80			0 4
X	83	4	-		-						1		-					
	83 89	_	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	100			5
%	Plar	nts Showi	ng		derate	Use		avy Us	<u>se</u>		or Vigor	-				%Change		
		'83 '89		00% 25%			00% 00%			00)%)%					+38% +88%		
		'97		00%			00%			00						+28%		
		'02		00%	6		00%	6		05	5%							
Тс	ıtal I	Plants/Ac	re (ev	cludin	ισ Dea	d & S	eedlin	as)					'83		333	Dec:		0%
10	, tui 1	141113/110	ic (ca	Cradin	ig Dea	u cc	ccaiiii	53)					'89		533	Dec.		0%
													'97		4540			0%
-													'02	,	6340			1%
\vdash		tima myr	sınites	5							_					1	-1	
	83 89	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	97	_	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
											or Vigor				(%Change		
		'83		00%			00%)% .0/							
		'89 '97		00% 00%			00% 00%)%)%							
		'02		00%			00%)%							
т	., 1 =	01/-4		.1. **	. D	100	11.	>					100		100	Б		
10	otal I	Plants/Ac	re (ex	ciudin	ig Dea	a & S	eealin	gs)					'83 '89		133	Dec:		-
													'97	,	0			-
Ĭ.													'02		0			-

A G	Y R	Form Cl	ass (N	lo. of I	Plants)				Vigor Cl	ass			Plants Per Acre	Average (inches)		Total	
E	IX	1	2	3	4	5	6	7	8	9	1	2	3	4	Tel Acie	Ht. Cr.		
Ro	sa v	voodsii														•		
	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	4	-	-	-	-	-	-	-	-	4	-	-	-	266			4
	97	6	-	-	1	-	-	-	-	-	7	-	-	-	140			7
	02	12	-	-	-	-	-	1	-	-	12	-	1	-	260			13
M		8	-	-	-	-	-	-	-		8	-	-	-	533	12	3	8
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	1	-	-	-	-	-	1	-	-	2	-	-	-	40	-	-	2 0
	02	-	-	-	-	-	-	-	-	-	ı	-	-	-	0	-	-	0
D	83	-	-	-	-	-	-	-	-	1	ı	-	-	-	0			0
	89	-	1	1	-	-	-	-	-	-	2	-	-	-	133			2 0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			
	02	-	-	-	-	-	-	-	-	-	ľ	-	-	-	0			0
%	Plar	nts Showi	ng	Mo	derate	Use	Hea	ıvy Us	se	<u>Pc</u>	or Vigor				(%Change		
		'83		00%			00%				0%					-25%		
		'89		17%			17%				0%					-55%		
		'97		00%			00%				0%				-	+31%		
		'02		00%	o o		00%	6		08	3%							
Тс	ıtal F	Plants/Ac	re (ev	cludin	σ Dea	d & Se	eedlin	σς)					'83	1	533	Dec:		0%
1	, tui 1	141113/170	10 (UA	ciuuiii	.g 120a	a cc b	Cuilli	63 <i>)</i>					'89		399			33%
													'97		180			0%
													'02		260			0%

	Y	Form Cla	ass (N	lo. of	Plants))					Vigor Cl	ass			Plants	Average		Total
E	R	1	2	3	4	5	6	7	8	9	1	2	3	4	Per Acre	(inches) Ht. Cr.		
S	ympł	noricarpos	s orec	philus	S													
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97 02	1 1	-	-	-	-	-	-	-	-	1 1	-	-	-	20 20			1 1
17			-		-					-				_				1
Y	83 89	1	-	2	-	-	-	-	-	-	1 2	-	-	-	66 133			1 2
	97	10	3	_	3	_	_	_	_	-	16	_	_	_	320			16
	02	38	1	1	-	-	-	-	-	-	39	1	-	-	800			40
M	83	6	3	2	-	-	-	-	-	-	10	-	1	-	733	23	21	11
	89	-	-	1	-	-	-	-	-	-	1	-	-	-	66	17	14	1
	97 02	79 18	3	-	25	-	-	3	-	-	109 18	-	1 -	-	2200 360	12 11	20 24	110 18
_ D	83	10								_				_	0	11	24	0
טן	83 89	-	-	13	-	3	-	-	-	-	- 16	-	-	-	1066			16
	97	-	_	1	_	-	_	_	_	-	1	_	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
%	Plar	nts Showi	ing		derate	Use		avy Us	<u>se</u>		or Vigor					%Change		
		'83 '89		259			17%				3%)%					+37%		
		197		169 059			84% .789				1% 8%					+50% -54%		
		'02		029			02%)%					5170		
_		- · · · · · ·			_										=00	_		00/
T	otal I	Plants/Ac	re (ex	cludir	ıg Dea	d & S	eedlin	gs)					'83 '89		799 1265	Dec:		0% 84%
													'97		2540			1%
													'02		1160			0%
T	etrad	ymia can	escen	S														
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97 02	1 5	-	-	1	-	-	-	-	-	2 5	-	-	-	40 100			2 5
_		3	-	-	-	-		-	-	-	3			_				
M	83 89		-	-	-	-	-	-	-	-	-	-	-	-	0	_	-	0 0
	97	5	-	-	4	-	-	-	_	-	9	-	-	_	180	15	16	9
	02	15	-	-	-	-	-	-	-	-	15	-	-	-	300	9	14	15
%	Pla	nts Showi	ing		derate	Use		avy Us		oor Vigor				(%Change			
		'83		009			00%)%							
		'89 '97		009			00% 00%)%)%				_	+45%		
		'02		009			00%)%					143/0		
Т	otal l	Plants/Ac	cludir	ng Dea	d & S	eedlin	gs)				'83		0	Dec:		-		
													'89 '97		0 220			-
													'02		400			-

A	Y R	Forn	ı Cla	ass (N	lo. of I	Plants))					Vigor (verage inches)	Total
E	K		1	2	3	4	5	6	7	8	9	1	2	3	4	1 CI 7 ICIC	Ht. Cr.		
U	Unknown browse																		
M	83		-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	1	0
	89		-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97		l	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
	02		-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
%	% Plants Showing Moderate Use Heavy Use Po										oor Vigor <u>%Change</u>								
			'83		00°	6 00%					00)%							
			'89		00%	00%			00%)%							
			'97		00%	o		00% 0			00)%							
										00)%								
Т	otal I	Plants	/Acı	re (ex	cludin	g Dea	d & Se	eedlin	gs)			'83		0	Dec:		-		
				,					- /					'89		0			-
														'97		20			-
														'02		0			-